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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,445	03/07/2002	Masato Taniguchi	Q68696	9556

23373 7590 07/16/2003

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WASHINGTON, DC 20037

EXAMINER
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JEFFERY, JOHN A

ART UNIT	PAPER NUMBER
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3742

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DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/091,445

Applicant(s)

TANIGUCHI ET AL.

Examiner

John A. Jeffery

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 8-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

## DETAILED ACTION

### *Title of Invention*

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Ceramic Heater With Lead Wire Connection Having Brazing Material Containing a Predominant Amount of Copper."

### *Drawings*

The drawings are objected to because of the following informalities:

Fig. 7: The figure must be labeled "PRIOR ART."

The response to this action must include a separate letter addressed to the examiner and contain: (1) sketches showing in red the drawing changes required above and (2) a request that the examiner approve the changes as shown on the sketches.

IMPORTANT NOTE: The filing of new formal drawings to correct the noted defect may be deferred until the application is allowed by the examiner, but the print or pen-and-ink sketches with proposed corrections in red ink is required in response to this office action, and may not be deferred.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this action:

A person shall be entitled to a patent unless -

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 7 are rejected under 35 USC 102(e) as being anticipated by Tanaka et al (US6512210). Tanaka et al (US6512210) discloses in the abstract a ceramic heater with a heating element buried in a ceramic substrate and a lead wire joined to a connection terminal via a brazing metal that, according to the abstract, is "based on Cu" (i.e., comprises a predominant amount of copper). Note also metal pads 8.

***Joint Inventors--Common Ownership Presumed***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligations under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103.

***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US6512210) in view of Cooper et al (US6078028). The claims differ from the previously cited prior art in calling for the brazing material to contain Ti or Si as an activation metal. Providing Ti as an activation metal in a lead attachment braze for a ceramic heater is conventional and well known in the art as evidenced by Cooper et al (US6078028) noting col. 6, lines 33-54 where an activation metal is provided for a braze that includes between 0.1 – 5 weight percent titanium. Col. 6, lines 43 and 53-54. The addition of the activation metal reacts with the ceramic material to improve the braze's adhesion to the ceramic. Col. 6, lines 33-37. In view of Cooper et al (US6078028), it would have been obvious to one of ordinary skill in the art to provide titanium as an activation metal in the braze of the previously described apparatus so that the activation metal reacts with the ceramic material to improve adhesion of the braze to the ceramic.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US6512210) in view of Finch (US2629922). The claim differs from the previously cited prior art in calling for the brazing metal to contain at least 85% by mass of copper.

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Providing a copper-based brazing material with 85% copper is well known in the art as evidenced by Finch (US2629922) noting col. 2, lines 19-25 where a terminal for an electric resistor is brazed with a brazing material comprising 85% copper. The use of a high amount of copper (i.e., at least 85%) in the braze material is advantageous in view of copper's excellent electrical conductivity and its ability to melt to form a very effective brazed joint at the terminal. See, e.g., col. 3, lines 26-29. In view of Finch (US2629922), it would have been obvious to one of ordinary skill in the art to utilize a copper-based braze with at least 85% copper so that the braze exhibited excellent electrical conductivity and was able to readily melt to form a very effective brazed joint at the terminal.

Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US6512210) in view of Finch (US2629922) and further in view of Cooper et al (US6078028). The claims differ from the previously cited prior art in calling for the brazing material to contain Ti or Si as an activation metal. Providing Ti as an activation metal in a lead attachment braze for a ceramic heater is conventional and well known in the art as evidenced by Cooper et al (US6078028) noting col. 6, lines 33-54 where an activation metal is provided for a braze that includes between 0.1 – 5 weight percent titanium. Col. 6, lines 43 and 53-54. The addition of the activation metal reacts with the ceramic material to improve the braze's adhesion to the ceramic. Col. 6, lines 33-37. In view of Cooper et al (US6078028), it would have been obvious to one of ordinary skill in the art to provide titanium as an activation metal in the braze of the previously described

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apparatus so that the activation metal reacts with the ceramic material to improve adhesion of the braze to the ceramic.

### ***Allowable Subject Matter***

Claims 8-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Other Pertinent Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The art should be both separately considered and considered in conjunction with the previously cited prior art when responding to this action. JP 421, JP 615, JP 231, JP 832, JP 664, JP 422 disclose copper-based braze materials for terminal connections relevant to the instant invention.

### ***Conclusion***

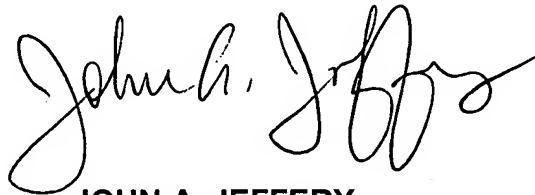
Any inquiry concerning this or earlier communications from the examiner should be directed to John A. Jeffery at telephone number (703) 306-4601 or fax (703) 305-3463. The examiner can normally be reached on Monday-Thursday from 7:00 AM to 4:30 PM EST. The examiner can also be reached on alternate Fridays.

The fax phone numbers for the organization where this application or proceeding is assigned are:

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Before Final	(703) 872-9302
After Final	(703) 872-9303
Customer Service	(703) 872-9301

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0861.



**JOHN A. JEFFERY  
PRIMARY EXAMINER**

**7/14/03**